What is claimed is:

1. An image-sensing apparatus comprising:

a plurality of pixels, the pixels each comprising:

a photoelectric conversion portion that has a photosensitive element for producing an electric signal in accordance with amount of incident light and that outputs a signal obtained by converting the electric signal natural-logarithmically; and

a lead-out path by way of which the signal output from the photoelectric conversion portion is fed to an output signal line; and

a controller that detects a variation in sensitivity of the photoelectric conversion portion of each pixel by injecting an electric charge into the photoelectric conversion portion.

2. An image-sensing apparatus as claimed in claim 1,

wherein the pixels are arranged in a matrix.

3. An image-sensing apparatus as claimed in claim 1,

wherein the pixels each further comprise an integrator circuit that integrates the signal output from the photoelectric conversion portion so that a signal integrated by the integrator circuit is fed by way of the lead-out path to the output signal line.

4. An image-sensing apparatus as claimed in claim 3,

wherein the pixels each further comprise a resetting portion, and

wherein, after each pixel outputs the signal integrated by the integrator circuit to the output signal line, the controller makes the resetting portion discharge an electric charge from the integrator circuit.

5. An image-sensing apparatus as claimed in claim 4,

wherein the resetting portion comprises a transistor having a first electrode connected to the integrator circuit, a second electrode, and a control electrode, and

wherein the controller achieves discharging of the electric charge from the integrator circuit by varying a voltage applied to the control electrode of the transistor so that the transistor is brought into a conducting state.

6. An image-sensing apparatus as claimed in claim 1,

wherein the pixels each further comprise an amplifying transistor that amplifies the signal output from the photoelectric conversion portion so that a signal output from the amplifying transistor is fed by way of the lead-out path to the output signal line.

7. An image-sensing apparatus as claimed in claim 6, further comprising:

load resistors or constant-current sources connected to the output signal line, a total number of the load resistors or constant-current sources being smaller than a total number of the pixels.

8. An image-sensing apparatus as claimed in claim 7,

wherein the load resistors or constant-current sources each comprise a resistive transistor having a first electrode connected to the output signal line, a second electrode connected to a direct-current voltage, and a control electrode connected to a direct-current voltage.

9. An image-sensing apparatus as claimed in claim 8,

wherein the amplifying transistor is an N-channel MOS transistor, and

wherein a direct-current voltage applied to a first electrode of the amplifying transistor is higher than the direct-current voltage applied to the second electrode of the resistive transistor.

10. An image-sensing apparatus as claimed in claim 8,

wherein the amplifying transistor is a P-channel MOS transistor, and

wherein a direct-current voltage applied to a first electrode of the amplifying transistor is lower than the direct-current voltage applied to the second electrode of the resistive transistor.

11. An image-sensing apparatus as claimed in claim 1,

wherein the lead-out path includes a switch that selects one after another of the pixels in a predetermined sequence and feeds the signal output from the selected pixel to the output signal line.

12. An image-sensing apparatus as claimed in claim 1,

wherein the photoelectric conversion portion comprises:

the photosensitive element having a first electrode to which a direct-current voltage is applied and a second electrode;

a first transistor having a first electrode connected to the second electrode of the photosensitive element, a second electrode, and a control electrode, the first transistor receiving an output current from the photoelectric element; and

a second transistor having a first electrode to which a direct-current voltage is applied, a second electrode from which an electric signal is output, and a control electrode connected to the first electrode of the first transistor, and

wherein the pixels each further comprise:

a first switching portion for applying a direct-current voltage to the control electrode of the first transistor; and

a second switching portion provided between the control electrode of the first transistor and the control electrode of the second transistor,

wherein the controller detects variations in sensitivity of the individual pixels by turning on the first switching portion and turning off the second switching portion so that a predetermined direct-current voltage is applied to the control electrode of the first transistor and that the control electrodes of the first and second transistors are brought into a cut-off state, and

wherein the controller makes the individual pixels perform image sensing by turning off the first switching portion and turning on the second switching portion so that the control electrodes of the first and second transistors are brought into a connected state.

13. An image-sensing apparatus as claimed in claim 12,

wherein the first switching portion is a third transistor having a first electrode connected to the control electrode of the first transistor, a second electrode to which a direct-current voltage is applied, and a control electrode,

wherein the second switching portion is a fourth transistor having a first electrode connected to the control electrode of the first transistor, a second electrode connected to the control electrode of the second transistor, and a control electrode,

wherein the controller detects variations in sensitivity of the individual pixels by feeding a signal to the control electrode of the third transistor so as to turn on the third transistor and turning off the fourth transistor so that a predetermined direct-current voltage is applied to the control electrode of the first transistor and that the control electrodes of the first and second transistors are brought into a cut-off state, and

wherein the controller makes the individual pixels perform image sensing by turning off the third transistor and feeding a signal to the control electrode of the fourth transistor so as to turn on the fourth transistor so that the control electrodes of the first and second transistors are brought into a connected state.

14. An image-sensing apparatus as claimed in claim 1,

wherein, during image sensing, the pixels can each operate selectively either in a first state in which the photoelectric conversion portion converts the electric signal linearly and in a second state in which the photoelectric conversion portion converts the electric signal natural logarithmically.

15. An image-sensing apparatus as claimed in claim 12,

wherein, during image sensing, the pixels can each operate selectively either in a first state in which the photoelectric conversion portion converts the electric signal linearly and in a second state in which the photoelectric conversion portion converts the electric signal natural logarithmically, and

wherein the controller switches the individual pixels between the first and second states by varying a voltage difference between the first and second electrodes of the first transistor of the photoelectric conversion portion of each pixel.

16. An image-sensing apparatus as claimed in claim 1,

wherein the controller detects variations in sensitivity of the photoelectric conversion portion of the individual pixels with the photosensitive elements of the individual pixels kept in a dark state.

17. An image-sensing apparatus comprising:

a plurality of pixels, the pixels each comprising:

a photodiode, having two electrodes, for producing an electric signal in accordance with amount of incident light;

a first MOS transistor having a first electrode connected to one of the electrodes of the photodiode, a second electrode, and a gate electrode;

a second MOS transistor having a first electrode connected to the gate electrode of the first MOS transistor, a second electrode to which a direct-current voltage is applied, and a gate electrode;

a third MOS transistor having a first electrode connected to the gate electrode of the first MOS transistor, a second electrode connected to the first electrode of the first MOS transistor, and a gate electrode; and

a fourth MOS transistor having a first electrode, a second electrode, and a gate electrode connected to the first electrode of the first MOS transistor; and

a controller that detects variations in sensitivity of the individual pixels by feeding a signal to the gate electrode of the second MOS transistor so as to turn on the second MOS transistor and turning off the third MOS transistor so that a predetermined direct-current voltage is applied to the gate electrode of the first MOS transistor and that the gate electrodes of the first and fourth MOS transistors are brought into a cut-off state,

wherein the controller makes the individual pixels perform image sensing by turning off the second MOS transistor and feeding a signal to the gate electrode of the third MOS transistor so as to turn on the third MOS transistor so that the gate electrodes of the first and fourth MOS transistors are brought into a connected state.

18. An image-sensing apparatus as claimed in claim 17,

wherein, when making the individual pixels perform image sensing, the controller, in a case where the electric signal output from the photodiode is converted natural-logarithmically and is output from the second electrode of the fourth MOS transistor, makes the first MOS transistor operate in a subthreshold region below a threshold value thereof, and, in a case where the electric signal output from the photodiode is converted linearly and is output from the second electrode of the fourth MOS transistor, brings a potential of the second electrode of

the first MOS transistor and a potential of the other electrode of the photodiode closer together so as to bring the first MOS transistor into an inactive state and, after allowing the electric signal to be output, performs resetting so that electric charges accumulated at the first and gate electrodes of the first MOS transistor are discharged by switching a level of a voltage applied to the gate electrode of the second MOS transistor so as to bring the second MOS transistor into a conducting state.

19. An image-sensing apparatus as claimed in claim 17,

wherein the pixels each further comprise a fifth MOS transistor having a first electrode connected to the second electrode of the fourth MOS transistor, a second electrode connected to an output signal line, and a gate electrode connected to a line select line.

20. An image-sensing apparatus as claimed in claim 17,

wherein the pixels each further comprise a sixth MOS transistor, having a first electrode to which a direct-current voltage is applied, a second electrode, and a gate electrode connected to the second electrode of the fourth MOS transistor, for amplifying an output signal output from the second electrode of the fourth transistor.

21. An image-sensing apparatus as claimed in claim 19,

wherein the pixels each further comprise a capacitor that is connected to a signal line of which one end is connected to the second electrode of the fourth

MOS transistor and that is reset through the fourth MOS transistor when a resetting voltage is fed to the first electrode of the fourth MOS transistor.

22. An image-sensing apparatus as claimed in claim 19,

wherein a direct-current voltage is applied to the first electrode of the fourth MOS transistor, and

wherein the pixels each further comprise:

a seventh MOS transistor having a first electrode connected to the second electrode of the fourth MOS transistor, a second electrode to which a direct-current voltage is applied, and a gate electrode; and

a capacitor that is connected to a signal line of which one end is connected to the second electrode of the fourth MOS transistor and that is reset through the seventh MOS transistor when a resetting voltage is fed to the gate electrode of the seventh MOS transistor.

23. An image-sensing apparatus as claimed in claim 17, further comprising:

MOS transistors connected by way of output signal lines to the individual pixels so as to serve as load resistors or constant-current sources.

24. An image-sensing apparatus as claimed in claim 17,

wherein the controller detects variations in sensitivity of the individual pixels with the photodiodes of the individual pixels kept in a dark state.